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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 09/209,982
Filing Date: December 09, 1998
Appellant(s): KAPLINSKY, MICHAEL

Thomas J. D'Amico
Jennifer M. McCue
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed December 19, 2006 and corrected on March 5, 2007 appealing from the Office action mailed June 19, 2006.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

No amendment after final has been filed.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

6,320,668	Kim	11-2001
6,256,062	Endo	07-2001

Yamaguchi (Japanese Publ. No. 02-074367 A)

Translation of Japanese Publication No. 02-074367 to Yamaguchi

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

1. **Claims 1, 4-9, 11-13, 16, 17, and 21-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kim (U.S. Patent No. 6,320,668) in view of Yamaguchi (Japanese Publ. No. 02-074367 A).**

2. Regarding ***claim 1***, Kim discloses a color correction apparatus and method in an imaging system. Kim discloses obtaining reference outputs from an image sensor using a color image array (20). The reference outputs are derived from a chromaticity chart shown as reference number 12 in Figure 3. The chromaticity chart includes the primary colors (red, green, and blue) as well as 21 additional colors for a total of 24 colors. The system receives an input from a colorimeter and compares it to the input reference data. The system then operates to reduce an error between the colorimetric scanning data and the data obtained by scanning the chromatic test pattern (12) by computing a color coefficient correction matrix. See column 13, lines 40-64 and column 21, lines 18-50. In this manner the system is optimized for each of the input colors and color–corrected image is obtained. The applicant's claim is directed toward performing

color correction also including gray scale references as colors. Therefore, as shown in Figure 3, the last line of the chromatic portion (12) of the test chart (10) is interpreted to be a gray scale line (col. 12, lines 25-27) used in the color correction. As shown in column 13, lines 40-62, Kim discloses calculating a minimum value for each of the error values of the red green and blue components of the input colors. In this case the reference is denoted as P_{Ri}, P_{Gi}, and P_{Bi}. The input colorimetric data is denoted as $\underline{P}_{Ri}$, $\underline{P}_{Gi}$, and $\underline{P}_{Bi}$. The process for calculating a minimum value for each of the error values of the red, green, and blue components would inherently be the same as the process for computing the error between the grey level corrected signals and the colorimetric scanning data as described on column 21, lines 1-65. Kim teaches that his color correction apparatus is used in more closely approximating actual colors according to the CIE-XYZ color coordinate system. See column 12, lines 35-68. Furthermore, Kim teaches that his color correction is performed in order to have a more accurate reproduction of the colors of an image, such as in a printer. See column 7, lines 35-62. Additionally, Kim teaches that a colorimeter is used to determine the exact color of each color in the chromatic test chart (col. 13, lines 6-8). Thus, in order to have a more faithful reproduction of color in the printer (9) disclosed in Kim, the colorimeter measures the actual colors of the test chart and uses them to generate the color correction matrix. Therefore, the colors determined using the colorimeter are interpreted by the examiner to be the expected signals of an image-rendering device (printer).

Kim, however, fails to disclose weighting certain colors more than others. Yamaguchi, on the other hand, discloses that it is well known in the art to weigh some colors more than others when constructing a color correction matrix. See the abstract. By choosing certain colors to be weighted more than others, the system is placing more emphasis on specific colors. By

placing more emphasis on certain colors such as flesh tones, the colors which are important and to which the eyes are more sensitive will be emphasized, thus producing a higher quality image. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to emphasize the error measurements of specific colors in Kim so that colors which are important to an image are given more weight, thereby forming a better image.

3. As for ***claim 4***, Kim discloses using 24 colors in the color chart (12). Thus, the system uses at least 7 colors. See column 12, lines 15-30.

4. As for ***claim 5***, Kim discloses using 24 colors in the color chart. See column 12, lines 15-30.

5. Regarding ***claim 16***, Yamaguchi discloses weighing flesh tones more than others. See the abstract.

6. With regard to ***claim 21***, Yamaguchi discloses weighing certain colors more than others (i.e. flesh tones). Additionally, Yamaguchi teaches that a weighing factor is applied to specific colors within the color correction matrix in order to weigh flesh tones more heavily. See the abstract. The fact that flesh tones are weighed more than other less important colors, shows that Kim is concerned with the impact of the flesh tones on the image quality.

7. As for ***claim 23***, Kim discloses that the detected signals are obtained for each of R, G, and B components. See column 14, lines 1-45.

8. Regarding ***claim 25***, Kim teaches that the object of the invention is to image an object and provide a high quality, color image. This is done by scanning test patterns and setting up a color correction matrix for high fidelity imaging. After establishing an accurate color correction

matrix this device is inherently used to capture images of objects, which are to be reproduced using the color correction matrix. See column 1, lines 17-26.

9. With regard to ***claim 6***, Kim discloses a color correction apparatus and method in an imaging system. Kim discloses obtaining reference outputs from an image sensor using a color image array (20). A spectral optical system is used which includes a color resolution filter (col. 7, lines 45). The system outputs spectral information regarding the RGB colors (col. 13, lines 46 and 47). This amounts to an interpolation to determine all color components that impinge on the pixel. The reference outputs are derived from a chromaticity chart shown as reference number 12 in Figure 3. The chromaticity chart includes the primary colors (red, green, and blue) as well as 21 additional colors for a total of 24 colors. The system receives an input from a colorimeter and compares it to the input reference data. The system then operates to reduce an error between the colorimetric scanning data and the data obtained by scanning the chromatic test pattern (12) by computing a color coefficient correction matrix. See column 13, lines 40-64 and column 21, lines 18-50. The color correction-processing unit acts as the image interpolator since it performs the color correction. In this manner the system is optimized for each of the input colors and color–corrected image is obtained. The applicant's claim is directed toward performing color correction also including gray scale references as colors. Therefore, as shown in Figure 3, the last line of the chromatic portion (12) of the test chart (10) is interpreted to be a gray scale line (col. 12, lines 25-27) used in the color correction.

However, Kim fails to disclose weighting certain colors more than others. Yamaguchi, on the other hand, discloses that it is well known in the art to weigh some colors more than others when constructing a color correction matrix. See the abstract. By choosing certain colors

to be weighted more than others, the system is placing more emphasis on specific colors. By placing more emphasis on certain colors such as flesh tones, the colors which are important and to which the eyes are more sensitive will be emphasized, thus producing a higher quality image. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to emphasize the error measurements of specific colors in Kim so that colors which are important to an image are given more weight, thereby forming a better image.

10. Regarding ***claim 7***, Kim discloses that the color chart (12) includes red, green, blue, white, and 20 additional colors. See column 12, lines 15-30.

11. As for ***claim 8***, Kim discloses using 24 colors in the color chart. See column 12, lines 15-30.

12. With regard to ***claim 9***, the system receives an input from a colorimeter and compares it to the input reference data. The system then operates to reduce an error between the colorimetric scanning data and the data obtained by scanning the chromatic test pattern (12) by computing a color coefficient correction matrix. See column 13, lines 40-64 and column 21, lines 18-50. As mentioned above, Yamaguchi discloses that it is well known in the art to weigh some colors more than others when constructing a color correction matrix. See the abstract. By choosing certain colors to be weighted more than others, the system is placing more emphasis on specific colors. By placing more emphasis on certain colors such as flesh tones, the colors which are important and to which the eyes are more sensitive will be emphasized, thus producing a higher quality image.

13. With regard to ***claim 11***, as mentioned above in the rejection of claim 6, it is obvious to weight colors which are important (and to which the eye is more sensitive to), higher than other

colors, so that a higher quality image is formed. It is well known in the art that red, green, and blue are very important colors, and thus it would have been obvious to one of ordinary skill in the art to weigh these colors more than the dull colors.

14. Regarding ***claim 12***, Kim discloses using each color of the color chart (12) to produce a color correction matrix. See column 11, line 65 to column 12, line 41.

15. As for ***claim 17***, the equations represented by the color correction processing unit would inherently be solved simultaneously in Kim.

16. Regarding ***claim 22***, Yamaguchi discloses weighing certain colors more than others (i.e. flesh tones). Additionally, Yamaguchi teaches that a weighing factor is applied to specific colors within the color correction matrix in order to weigh flesh tones more heavily. See the abstract. The fact that flesh tones are weighed more than other less important colors, shows that Kim is concerned with the impact of the flesh tones on the image quality.

17. With regard to ***claim 13***, Kim discloses a color correction apparatus and method in an imaging system. Kim discloses obtaining reference outputs from an image sensor using a color image array (20). A spectral optical system is used which includes a color resolution filter (col. 7, lines 45). Inherently a color filter operates to supply only light of a certain wavelength to the pixel which it covers. The system outputs spectral information regarding the RGB colors (col. 13, lines 46 and 47). The reference outputs are derived from a chromaticity chart shown as reference number 12 in Figure 3. The chromaticity chart includes the primary colors (red, green, and blue) as well as 21 additional colors for a total of 24 colors. The system receives an input from a colorimeter and compares it to the input reference data. The system then operates to reduce an error between the colorimetric scanning data and the data obtained by scanning the

chromatic test pattern (12) by computing a color coefficient correction matrix. See column 13, lines 40-64 and column 21, lines 18-50. In this manner the system is optimized for each of the input colors and color–corrected image is obtained. The applicant's claim is directed toward performing color correction also including gray scale references as colors. Therefore, as shown in Figure 3, the last line of the chromatic portion (12) of the test chart (10) is interpreted to be a gray scale line (col. 12, lines 25-27) used in the color correction. Furthermore, as mentioned previously, the colorimeter is used to determine signals expected to be seen for each of the plurality of known reference colors.

However, Kim fails to disclose weighting certain colors more than others. Yamaguchi, on the other hand, discloses that it is well known in the art to weigh some colors more than others when constructing a color correction matrix. See the abstract. By choosing certain colors to be weighted more than others, the system is placing more emphasis on specific colors. By placing more emphasis on certain colors such as flesh tones, the colors which are important and to which the eyes are more sensitive will be emphasized, thus producing a higher quality image. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to emphasize the error measurements of specific colors in Kim so that colors which are important to an image are given more weight, thereby forming a better image.

18. With regard to ***claim 24,*** Kim discloses that the detected signals are obtained for each of R, G, and B components. See column 14, lines 1-45.

19. As for ***claim 26***, Kim teaches that the object of the invention is to image an object and provide a high quality, color image. This is done by scanning test patterns and setting up a color correction matrix for high fidelity imaging. After establishing an accurate color correction

matrix this device is inherently used to capture images of objects, which are to be reproduced using the color correction matrix. See column 1, lines 17-26.

20. **Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kim (U.S. Patent No. 6,320,668) in view of Yamaguchi (Japanese Publ. No. 02-074367 A) and further in view of Endo (U.S. Patent No. 6,256,062).**

21. Regarding ***claim 3***, as mentioned above in the discussion of claim 1, the combination of Kim and Yamaguchi discloses all of the limitations of the parent claim. However, neither of the aforementioned references specifically discloses that the weight factor may have a different value for each of the reference colors. Endo, on the other hand, discloses that it is well known in the art to select a plurality of different colors and weight them differently according to a user input. More specifically, Endo teaches the ability to select a color from a test color chart and to enter a weighting factor. See column 8, lines 18-36. This feature allows for a plurality of colors to be corrected such that color differences among cameras are corrected. See column 10, lines 35-50. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to allow the device of Kim to adjust the weighting factors for each of the colors differently so that color difference may be minimized.

(10) Response to Argument

Argument A.1. *The combination of Kim and Yamaguchi does not teach or suggest all limitations of the claim*

Regarding claims 1, 6, and 13 as discussed on pages 10-15 of the appeal brief filed December 19, 2006, applicant argues the Yamaguchi fails to disclose a weighted error measure. Therefore, the combination of Kim and Yamaguchi can not disclose the limitation of "applying a weighted error factor to said error measure for each of said plurality of known reference colors to obtain respective weighted error measures for each of said plurality of known reference colors". The examiner agrees that neither Kim nor Yamaguchi along specifically discloses applying a weight factor to the error measure of all of the known reference colors. However, the examiner notes (and it appears that the applicant concedes) that Kim discloses all of the limitations of the claims except for weighting the error measure. Without taking Yamaguchi into consideration, it is well known in the art to weight certain colors more than others to emphasize them. It seems well within the realm of one of ordinary skill in the art, given the teachings of Kim, to apply a weighted error measures to certain colors. See equation 4, page 11 of the specification for the discussion on weight factors. That being said, the examiner only brought in Yamaguchi to show that it is well known in the art to weight certain colors more than others. Although the applicant is correct in asserting that Yamaguchi does not apply the weight factors to the error measures, this seems well within the grasp of one of ordinary skill in the art. Since Kim discloses all of the limitations except for applying the weight factors to the error measures, the examiner believes that one of ordinary skill in the art would have found it obvious to weight those error measures based on the teachings of Yamaguchi, which broadly discloses applying weights to certain colors (i.e. flesh tones, see page 9 of the translation).

Applicants argument that Yamaguchi weights colors in a different manner is irrelevant since Yamaguchi was only used to show that it is well known in the art to weight certain colors

more than others. Given the teaching of Yamaguchi, one of ordinary skill in the art would have found it obvious to weight the error measures of Kim.

Arguments B.1., B.2., B.3., C.1., C.2., D.1., and E all argue the same thing as above. Namely, that the combination of Kim and Yamaguchi fails to disclose weighted error measures.

Argument A.2. *One skilled in the art would not have been motivated to combine the teachings of Kim and Yamaguchi absent improper hindsight provided by the application.*

In response to applicant's argument on pages 15 and 16 that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971). Additionally, applicant argues on page 16 that the examiner has not provided proper motivation. Applicant argues that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found in the references themselves, and applicant argues that there is no suggestion or motivation in the reference to combine. However, the examiner has provided motivation to the applicant. Particularly, the examiner has stated that by emphasizing certain colors more than others, a high quality image can be generated. This is backed up by Yamaguchi in the abstract, which states that an image with excellent color reproduction can be reproduced by weighing desired colors.

Also, page 16 of the Yamaguchi translation states that visually superior images can be formed in this manner.

Argument A.3. *Claims 1, 6, and 13 are not obvious in view of Kim and Yamaguchi.*

See Argument A.1. above.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

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5/23/07

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